

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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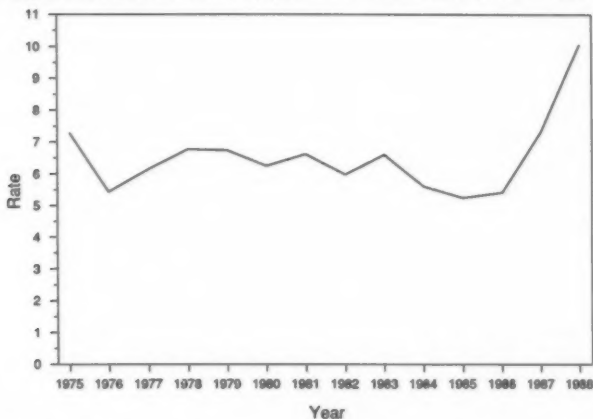
Current Trends

Community Outbreaks of Shigellosis — United States

From 1986 to 1988*, the reported isolation rate of *Shigella* in the United States increased from 5.4 to 10.1 isolates per 100,000 persons (Figure 1). In 1988, state health departments reported 22,796 isolates of *Shigella* to CDC, the highest number since national surveillance began in 1965. In addition to the recent increase in *Shigella* isolation rates, many communitywide shigellosis outbreaks that have been difficult to control have been reported. This report describes four community outbreaks of shigellosis during 1986–1989 in which innovative public health control measures were used.

*The most recent year for which national surveillance data are available.

FIGURE 1. *Shigella* isolation rates*, by year — United States, 1975–1988†



*Per 100,000 population.

†Data from the National *Shigella* Surveillance System.

Shigellosis — Continued

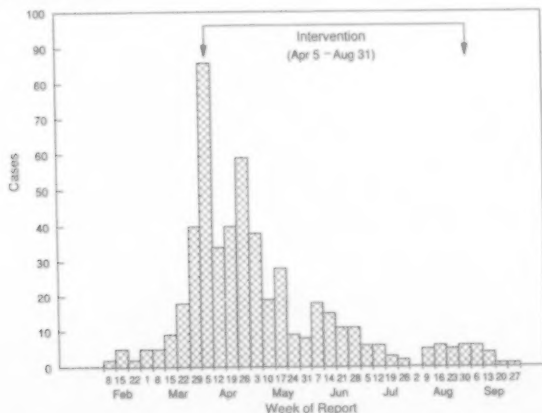
Kankakee County, Illinois. From October 1986 through February 1987, an outbreak of shigellosis caused by *S. sonnei* occurred in Kankakee County, Illinois (population: 97,800). Of 191 persons with culture-confirmed shigellosis, 70% were black and 61% were aged 1–10 years. Thirty-one percent of patients were hospitalized. Cases were clustered in low-income areas. An epidemiologic investigation did not identify common sources of exposure in the community; many patients reported having had contact with persons with culture-confirmed shigellosis or symptoms compatible with shigellosis.

To control this outbreak, from December 12 to January 10 the following measures were implemented: 1) information about shigellosis and its prevention was provided to parents of all children in the school district where most of the cases occurred, to child-care centers and preschools, and through schools, churches, and the news media; 2) teachers monitored handwashing by students before lunch; 3) parents assisted in monitoring handwashing in schools in the most severely affected areas; and 4) home-prepared foods were not permitted at any school or child-care events. Although the number of reported cases subsequently decreased, the outbreak did not end until March.

Peoria County, Illinois. From February through September 1987, a shigellosis outbreak caused by *S. sonnei* occurred in Peoria County, Illinois (Figure 2) (population: 181,500). Of the 513 culture-confirmed cases, 75% were in blacks and 69% were in children aged 1–10 years. Most patients resided in low-income areas. Seven percent of patients were hospitalized. Investigation did not identify a common source of exposure; most patients had a history of contact with a person who had culture-confirmed shigellosis or symptoms compatible with shigellosis.

During April, the following interventions were implemented: 1) child-care center and nursery school employees were informed about shigellosis prevention; 2) school officials in the affected area ensured that warm water, soap, and disposable towels for handwashing were always available for students; 3) in schools, parents and teachers

FIGURE 2. Reported cases of culture-confirmed shigellosis — Peoria County, Illinois, February–September 1987



Shigellosis — Continued

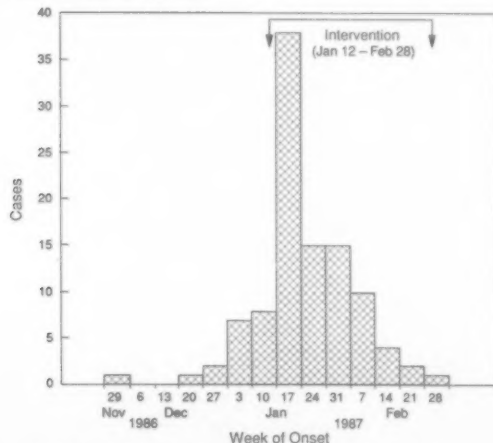
instructed students on proper handwashing and monitored children for symptoms of shigellosis; 4) printed educational material about shigellosis was provided to all persons attending Women, Infants, and Children (WIC) clinics, immunization clinics, community clinics, and hospital emergency rooms; 5) volunteers from the local Urban League and housing authority made door-to-door visits in affected neighborhoods to identify cases and provide printed educational material; 6) religious leaders discussed the *Shigella* outbreak with their congregations, and church publications included information on shigellosis prevention; and 7) parents taught neighborhood children how to wash their hands and monitored them for symptoms of shigellosis. Although the number of reported cases decreased concurrently with the intervention, the outbreak continued at a lower level until September.

Orange County, New York. From November 29, 1986, to February 28, 1987, 110 culture-confirmed cases of *S. sonnei* gastroenteritis were reported in residents of a religious community (population: 5200) in Orange County, New York (Figure 3). Cases occurred primarily among school children 2½–9 years of age; cases were evenly distributed by sex. An epidemiologic investigation did not identify a point source of exposure; spread of disease was consistent with person-to-person transmission.

Control measures were focused in schools and implemented from January 12 through February 28. The measures included 1) widespread dissemination of information about shigellosis and its prevention (e.g., proper handwashing and diaper changing) in schools and the community child-care center, 2) a program in which older children monitored handwashing by young children in the schools, and 3) periodic health department sanitation inspections of the schools. The number of reported cases of shigellosis declined concurrently with the intervention efforts.

Caddo County, Oklahoma. From August through October 1989, 34 persons with gastroenteritis caused by *S. sonnei* were identified in Caddo County, Oklahoma

FIGURE 3. Reported cases of culture-confirmed shigellosis* — Orange County, New York, November 1986–February 1987



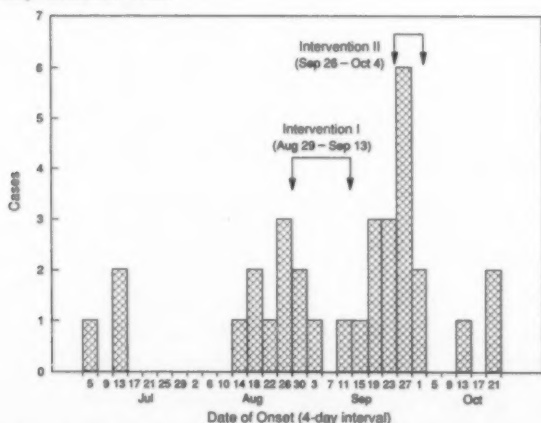
*Six reports did not specify date of onset and are not included here.

Shigellosis — Continued

(Figure 4) (population: approximately 32,100, including 18% Native Americans). Ninety-one percent of cases were in Native Americans. Seventy-one percent were in children and teenagers. An epidemiologic investigation did not identify a common source of infection but did suggest person-to-person transmission: 37 persons with symptoms compatible with shigellosis became ill after being exposed to a person (usually in their household) with a culture-confirmed *Shigella* infection. Clusters of cases occurred in persons residing in two Native American housing developments where children regularly played and ate snacks together.

Initial interventions implemented from August 29 to September 13 included 1) efforts to contact families of patients to identify potential exposures and secondary cases and to provide information on hygiene and handwashing, 2) education at child-care centers and other institutions on the importance of hygiene and sanitation in preventing transmission, and 3) encouragement of physicians, hospitals, and clinical laboratories in the area to assist in identifying and reporting new cases. The number of new cases reported initially declined; however, when new cases began to increase again, additional measures were implemented from September 26 to October 4, including dissemination of information on shigellosis and its prevention through 1) assistance of tribal leaders in providing information in tribal newsletters and at informal gatherings, 2) presentations at tribal senior citizen lunches, 3) house-to-house visits by public health officials and other persons in areas where clusters of cases were identified, 4) distribution of take-home handouts to students in child-care centers and schools, 5) press releases to local newspapers and radio stations, 6) puppet shows on handwashing performed at all child-care centers, where informational posters were distributed to attendees, and 7) notification to restaurants and churches of the importance of excluding symptomatic persons from food handling duties. The last confirmed case occurred on October 21.

FIGURE 4. Reported cases of culture-confirmed shigellosis* — Caddo County, Oklahoma, July–October 1989



*Five reports did not specify date of onset and are not included here.

Shigellosis — Continued

Reported by: C Pate, MS, D Safiran, F Sutton, N Scanlon, E Blanchette, Kankakee County Health Dept; A Kennell, MS, C Marvin, MS, L Esch, P Roberts, Peoria City/County Health Dept; K Kelly, C Langkop, MS, BJ Francis, MD, State Epidemiologist, Illinois Dept of Public Health. A Werzberger, MD, Monroe; S Kondracki, R Gallo, DL Morse, MD, State Epidemiologist, New York State Dept of Health. P Callahan, P Boden, MS, GR Istre, MD, State Epidemiologist, Oklahoma State Dept of Health. R Myers, Indian Health Service. Div of Field Svcs, Epidemiology Program Office; Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Since 1986, the incidence of shigellosis in the United States has increased in all regions of the country. The highest isolation rates were reported among residents of counties with large proportions of low-income minority residents, among young children, and among women of childbearing age.

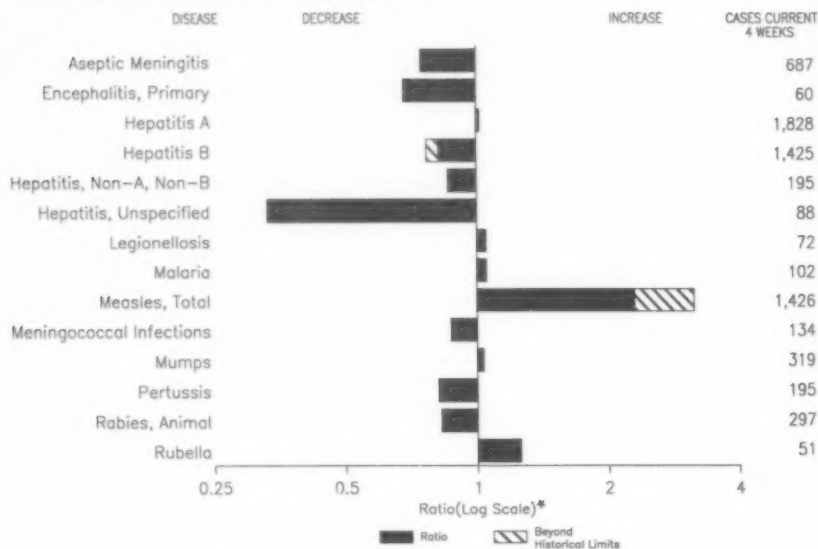
Communitywide outbreaks of shigellosis can be difficult to control because of the ease of person-to-person transmission among young children, high secondary attack rates, the frequently extended duration of these outbreaks, and multiple points of exposure. The impact of community interventions can be difficult to measure; however, the outbreaks described in this report suggest that effective control efforts should include the following: 1) communitywide recognition of the problem and participation in the intervention, 2) diversified and culture-specific educational efforts to promote handwashing and hygiene, and 3) supervised handwashing for children. Because community leaders can play a key role in developing interventions and ensuring that these interventions are accepted in the community, they should be actively involved in all control efforts.

Handwashing with soap and running water may be the single most important preventive measure to interrupt transmission of shigellosis (1). Soap and running water should be readily accessible to all persons during community outbreaks of shigellosis. Because young children are most likely to be infected with *Shigella* and are also most likely to infect others (2), a strict policy of supervised handwashing for young children after they have defecated and before they eat is crucial. Institutions where hygiene may be suboptimal (e.g., schools, child-care centers, and homeless shelters) can amplify transmission of shigellosis into the community and should be targeted for intensive control efforts. Excluding persons with diarrhea from handling food and limiting use of home-prepared foods at large gatherings will reduce the risk of large outbreaks caused by foodborne transmission.

Antimicrobials have a limited role in the control of epidemic shigellosis and are not a substitute for hygienic measures in reducing the secondary spread of shigellosis. Antimicrobials should be reserved for treatment of patients only when clinically indicated, and the decision to use antimicrobials to treat patients with mild, self-limiting illness should be weighed against the risk of producing resistant strains of *Shigella* (3). Prophylactic use of antimicrobials cannot be recommended to prevent illness in persons who are exposed but not ill. In addition, using antimicrobials to treat patients with mild shigellosis to reduce the spread of secondary infections is not known to be any more effective in preventing *Shigella* infections than handwashing with soap and water; moreover, this practice can lead to the development of resistant strains that complicate therapy (4,5). Because resistance patterns may change, antimicrobial selection should be based on ongoing monitoring of local antimicrobial resistance of *Shigella* strains.

Shigellosis outbreaks can occur at any time of the year but are most common in the summertime (6). *Shigella* infections should be suspected in communitywide

(Continued on page 519)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending July 28, 1990, with historical data — United States

*Ratio of current 4-week total to mean of 15 4-week totals (from comparable, previous, and subsequent 4-week periods for past 5 years).

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending July 28, 1990 (30th Week)

| | Cum. 1990 | | Cum. 1990 |
|-------------------------------|-----------|------------------------------------|-----------|
| AIDS | 24,710 | Plague | 1 |
| Anthrax | - | Poliomyelitis, Paralytic* | - |
| Botulism: Foodborne | 3 | Psittacosis | 73 |
| Infant | 34 | Rabies, human | 1 |
| Other | 2 | Syphilis: civilian | 27,588 |
| Brucellosis | 37 | military | 148 |
| Cholera | 2 | Syphilis, congenital, age < 1 year | 45 |
| Congenital rubella syndrome | 2 | Tetanus | 29 |
| Diphtheria | 1 | Toxic shock syndrome | 193 |
| Encephalitis, post-infectious | 60 | Trichinosis | 15 |
| Gonorrhea: civilian | 374,615 | Tuberculosis | 12,080 |
| military | 5,173 | Tularemia | 57 |
| Leprosy | 106 | Typhoid fever | 220 |
| Leptospirosis | 27 | Typhus fever, tickborne (RMSF) | 269 |
| Measles: imported | 778 | | |
| indigenous | 15,443 | | |

*Three cases of suspected poliomyelitis have been reported in 1990; five of 13 suspected cases in 1989 were confirmed and all were vaccine-associated.

TABLE II. Cases of specified notifiable diseases, United States, weeks ending July 28, 1990, and July 29, 1989 (30th Week)

| Reporting Area | AIDS | Aseptic Meningitis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionellosis | Leprosy |
|----------------|-----------|--------------------|--------------|-----------------|----------------------|-----------|----------------------------|-----------|-----------|-------------|---------------|-----------|
| | | | Primary | Post-infectious | | | A | B | NA,NB | Unspecified | | |
| | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1989 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 |
| UNITED STATES | 24,710 | 3,423 | 382 | 60 | 374,615 | 385,429 | 16,581 | 11,599 | 1,200 | 966 | 611 | 106 |
| NEW ENGLAND | 910 | 136 | 13 | - | 10,575 | 10,918 | 342 | 614 | 38 | 41 | 30 | 7 |
| Maine | 36 | 6 | 1 | - | 118 | 163 | 5 | 24 | 4 | 1 | 3 | - |
| N.H. | 41 | 12 | - | - | 119 | 106 | 5 | 27 | 3 | 2 | 3 | - |
| Vt. | 8 | 16 | 2 | - | 34 | 40 | 4 | 32 | 3 | - | 5 | - |
| Mass. | 503 | 41 | 4 | - | 4,334 | 4,261 | 243 | 368 | 19 | 36 | 14 | 6 |
| R.I. | 53 | 43 | 1 | - | 660 | 788 | 35 | 29 | - | 2 | 5 | 1 |
| Conn. | 269 | 18 | 5 | - | 5,310 | 5,560 | 50 | 114 | 9 | - | - | - |
| MID. ATLANTIC | 7,449 | 342 | 32 | 4 | 51,509 | 57,058 | 2,349 | 1,632 | 135 | 67 | 181 | 17 |
| Upstate N.Y. | 970 | 168 | 27 | 1 | 7,873 | 8,852 | 616 | 413 | 33 | 20 | 75 | 1 |
| N.Y. City | 4,334 | 69 | 2 | 1 | 21,042 | 22,593 | 277 | 459 | 22 | 31 | 28 | 12 |
| N.J. | 1,422 | - | 1 | - | 8,831 | 7,893 | 239 | 365 | 29 | - | 29 | 3 |
| Pa. | 723 | 105 | 2 | 2 | 13,763 | 17,720 | 1,217 | 399 | 51 | 16 | 49 | 1 |
| E.N. CENTRAL | 1,693 | 501 | 82 | 11 | 71,234 | 68,221 | 1,260 | 1,416 | 90 | 58 | 139 | 1 |
| Ohio | 409 | 117 | 19 | 3 | 21,752 | 17,363 | 122 | 259 | 29 | 9 | 49 | - |
| Ind. | 154 | 97 | 2 | 6 | 6,377 | 5,129 | 73 | 277 | 5 | 14 | 29 | - |
| Ill. | 673 | 86 | 26 | 2 | 22,327 | 21,629 | 608 | 256 | 26 | 15 | 8 | - |
| Mich. | 322 | 175 | 33 | - | 16,567 | 18,215 | 229 | 396 | 22 | 20 | 38 | - |
| Wis. | 135 | 26 | 2 | - | 4,211 | 5,885 | 228 | 228 | 8 | - | 15 | - |
| W.N. CENTRAL | 559 | 147 | 35 | 1 | 19,795 | 17,698 | 963 | 556 | 83 | 24 | 35 | - |
| Minn. | 94 | 11 | 11 | 1 | 2,365 | 1,826 | 152 | 75 | 21 | - | - | - |
| Iowa | 25 | 17 | 4 | - | 1,439 | 1,500 | 192 | 41 | 7 | 2 | 3 | - |
| Mo. | 329 | 78 | 3 | - | 12,007 | 10,686 | 303 | 338 | 32 | 18 | 21 | - |
| N. Dak. | 2 | 7 | - | - | 55 | 80 | 10 | 4 | 2 | 1 | - | - |
| S. Dak. | 1 | 4 | 2 | - | 125 | 147 | 115 | 5 | 3 | - | - | - |
| Nebr. | 27 | 13 | 7 | - | 969 | 873 | 57 | 23 | 4 | - | 6 | - |
| Kans. | 81 | 17 | 8 | - | 2,835 | 2,586 | 134 | 70 | 14 | 3 | 5 | - |
| S. ATLANTIC | 5,298 | 758 | 92 | 18 | 107,891 | 105,286 | 2,007 | 2,210 | 189 | 137 | 85 | 4 |
| Del. | 58 | 25 | 3 | - | 1,816 | 1,741 | 83 | 58 | 6 | 2 | 5 | - |
| Md. | 581 | 89 | 13 | 1 | 12,347 | 11,405 | 719 | 310 | 26 | 8 | 23 | 2 |
| D.C. | 414 | 2 | - | - | 7,446 | 7,067 | 12 | 28 | 4 | - | - | - |
| Va. | 497 | 104 | 34 | 2 | 9,274 | 8,851 | 166 | 126 | 26 | 94 | 7 | - |
| W. Va. | 38 | 23 | 9 | - | 691 | 803 | 13 | 53 | 3 | 1 | 3 | - |
| N.C. | 372 | 72 | 23 | - | 17,121 | 15,886 | 444 | 629 | 77 | - | 15 | 1 |
| S.C. | 234 | 10 | 1 | - | 8,573 | 9,682 | 26 | 354 | 12 | 8 | 14 | - |
| Ga. | 700 | 144 | 4 | 1 | 23,976 | 20,343 | 212 | 261 | 5 | 7 | 12 | - |
| Fla. | 2,404 | 289 | 5 | 14 | 26,647 | 29,509 | 332 | 391 | 30 | 17 | 6 | 1 |
| E.S. CENTRAL | 657 | 345 | 32 | 1 | 30,940 | 29,962 | 233 | 878 | 81 | 5 | 43 | - |
| Ky. | 106 | 82 | 10 | - | 3,356 | 2,946 | 58 | 304 | 29 | 4 | 18 | - |
| Tenn. | 188 | 55 | 16 | 1 | 9,658 | 9,996 | 110 | 472 | 37 | - | 14 | - |
| Ala. | 138 | 146 | 6 | - | 10,124 | 9,386 | 64 | 98 | 13 | - | 11 | - |
| Miss. | 223 | 62 | - | - | 7,802 | 7,634 | 1 | 4 | 2 | 1 | - | - |
| W.S. CENTRAL | 2,724 | 360 | 16 | 6 | 37,769 | 39,947 | 1,679 | 1,119 | 54 | 160 | 33 | 24 |
| Ark. | 106 | 6 | 1 | - | 4,919 | 4,517 | 297 | 51 | 6 | 12 | 7 | - |
| La. | 399 | 56 | 4 | - | 7,624 | 8,389 | 111 | 185 | 2 | 5 | 11 | - |
| Okla. | 122 | 29 | 2 | 5 | 3,486 | 3,443 | 333 | 82 | 18 | 13 | 11 | - |
| Texas | 2,097 | 269 | 9 | 1 | 21,740 | 23,598 | 938 | 801 | 28 | 130 | 4 | 24 |
| MOUNTAIN | 651 | 160 | 14 | - | 7,242 | 8,242 | 2,647 | 892 | 103 | 76 | 27 | - |
| Mont. | 8 | 3 | - | - | 105 | 114 | 70 | 44 | 4 | 4 | 2 | - |
| Idaho | 16 | - | - | - | 79 | 112 | 49 | 54 | 8 | - | 3 | - |
| Wyo. | 1 | 1 | 1 | - | 94 | 56 | 24 | 9 | 5 | 1 | - | - |
| Colo. | 191 | 34 | 3 | - | 1,408 | 1,793 | 168 | 100 | 27 | 26 | 3 | - |
| N. Mex. | 55 | 9 | - | - | 730 | 803 | 487 | 104 | 7 | 2 | 2 | - |
| Ariz. | 214 | 77 | 4 | - | 3,132 | 3,099 | 1,402 | 320 | 32 | 29 | 9 | - |
| Utah | 61 | 20 | 2 | - | 237 | 250 | 236 | 58 | 12 | 5 | 3 | - |
| Nev. | 105 | 16 | 4 | - | 1,457 | 2,015 | 211 | 203 | 8 | 9 | 5 | - |
| PACIFIC | 4,769 | 674 | 66 | 19 | 37,660 | 48,097 | 5,101 | 2,282 | 427 | 398 | 36 | 53 |
| Wash. | 384 | - | 4 | 1 | 3,091 | 3,824 | 868 | 358 | 76 | 16 | 9 | 3 |
| Oreg. | 180 | - | - | - | 1,481 | 1,701 | 517 | 254 | 20 | 7 | - | - |
| Calif. | 4,108 | 572 | 57 | 17 | 32,176 | 41,778 | 3,542 | 1,594 | 309 | 369 | 28 | 42 |
| Alaska | 22 | 46 | 4 | - | 617 | 516 | 117 | 37 | 3 | - | - | - |
| Hawaii | 75 | 56 | 1 | 1 | 295 | 278 | 57 | 39 | 9 | 5 | 1 | 8 |
| Guam | 1 | 2 | - | - | 133 | 81 | 7 | 1 | - | 7 | - | - |
| P.R. | 893 | 43 | 6 | - | 460 | 636 | 107 | 176 | 2 | 19 | - | - |
| V.I. | 8 | - | - | - | 249 | 390 | 1 | 8 | - | - | - | - |
| Amer. Samoa | - | 1 | - | - | 44 | 14 | 19 | - | - | - | - | 10 |
| C.N.M.I. | - | - | - | - | 106 | 57 | 9 | 6 | - | 15 | - | 3 |

N: Not notifiable

U: Unavailable

C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending July 28, 1990, and July 29, 1989 (30th Week)

| Reporting Area | Malaria | Measles (Rubeola) | | | | | Meningo- coccal Infections | Mumps | | Pertussis | | | Rubella | | | |
|----------------|---------|-------------------|--------|-----------|------|-------|----------------------------------|-----------|-------|-----------|-------|-----------|-----------|------|-----------|-----------|
| | | Indigenous | | Imported* | | Total | | Cum. 1990 | 1990 | Cum. 1990 | 1990 | Cum. 1990 | Cum. 1989 | 1990 | Cum. 1990 | Cum. 1989 |
| | | Cum. 1990 | 1990 | Cum. 1990 | 1990 | | | | | | | | | | | |
| UNITED STATES | 633 | 67 | 15,443 | 1 | 778 | 9,744 | 1,579 | 74 | 3,528 | 65 | 1,724 | 1,581 | 7 | 669 | 270 | |
| NEW ENGLAND | 54 | 2 | 176 | - | 20 | 303 | 119 | 3 | 34 | 8 | 218 | 229 | - | 7 | 6 | |
| Maine | 1 | - | 27 | - | 2 | - | 10 | - | - | - | 8 | 4 | - | - | - | |
| N.H. | 4 | - | - | - | 8 | 8 | 5 | - | 7 | - | 12 | 5 | - | 1 | 4 | |
| Vt. | 4 | - | - | - | 1 | 3 | 10 | - | 1 | - | 6 | 6 | - | - | 1 | |
| Mass. | 30 | 2 | 17 | - | 4 | 41 | 57 | 2 | 10 | 8 | 180 | 193 | - | 2 | 1 | |
| R.I. | 4 | - | 27 | - | 3 | 41 | 10 | - | 5 | - | 2 | 11 | - | 1 | - | |
| Conn. | 11 | - | 105 | - | 2 | 210 | 27 | 1 | 11 | - | 12 | 10 | - | 3 | - | |
| MID. ATLANTIC | 134 | 2 | 907 | - | 149 | 860 | 230 | 2 | 220 | 2 | 323 | 94 | - | 4 | 26 | |
| Upstate N.Y. | 26 | - | 194 | - | 109 | 137 | 87 | 2 | 93 | 1 | 254 | 42 | - | 3 | 5 | |
| N.Y. City | 47 | - | 201 | - | 21 | 73 | 30 | - | - | - | - | 3 | - | - | 15 | |
| N.J. | 45 | 1 | 151 | - | 10 | 414 | 50 | - | 54 | - | 13 | 23 | - | - | 2 | |
| Pa. | 16 | 1 | 361 | - | 9 | 236 | 63 | - | 73 | 1 | 56 | 26 | - | 1 | - | |
| E.N. CENTRAL | 27 | 5 | 3,004 | - | 141 | 2,785 | 209 | 1 | 361 | 16 | 351 | 225 | - | 30 | 23 | |
| Ohio | 5 | - | 452 | - | 3 | 661 | 67 | - | 75 | - | 96 | 33 | - | 1 | - | |
| Ind. | 1 | - | 316 | - | 1 | 51 | 21 | - | 13 | 15 | 74 | 13 | - | - | - | |
| Ill. | 9 | - | 1,159 | - | 10 | 1,792 | 53 | - | 114 | - | 87 | 83 | - | 17 | 18 | |
| Mich. | 9 | 5 | 343 | - | 125 | 99 | 47 | 1 | 121 | 1 | 41 | 26 | - | 9 | 1 | |
| Wis. | 3 | - | 734 | - | 2 | 182 | 21 | - | 38 | - | 63 | 70 | - | 3 | - | |
| W.N. CENTRAL | 10 | - | 750 | - | 13 | 588 | 54 | 1 | 93 | 5 | 71 | 94 | - | 6 | 6 | |
| Minn. | 1 | - | 314 | - | 3 | 15 | 11 | - | 15 | 1 | 8 | 11 | - | 1 | - | |
| Iowa | 2 | - | 23 | - | 1 | 5 | 1 | - | 46 | 4 | 47 | 62 | - | - | - | |
| Mo. | 6 | - | 78 | - | - | 323 | 21 | 1 | - | - | 1 | - | - | 1 | - | |
| N. Dak. | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | |
| S. Dak. | - | - | 15 | - | 8 | - | 2 | - | - | - | 1 | 1 | - | - | - | |
| Nebr. | - | - | 97 | - | 1 | 112 | 5 | - | 3 | - | 2 | 3 | - | - | - | |
| Kans. | 1 | - | 223 | - | - | 133 | 13 | - | 29 | - | 6 | 2 | - | - | - | |
| S. ATLANTIC | 139 | 7 | 805 | - | 129 | 470 | 288 | 44 | 1,479 | 3 | 145 | 121 | - | 15 | 8 | |
| Fl. | 2 | - | 8 | - | 3 | 38 | 2 | - | 3 | 1 | 3 | 1 | - | - | - | |
| J. | 38 | 2 | 186 | - | 18 | 51 | 32 | 25 | 879 | - | 38 | 12 | - | 2 | 2 | |
| Ind. | 10 | 5 | 15 | - | 7 | 23 | 11 | 3 | 28 | - | 14 | - | - | - | - | |
| D.C. | 35 | - | 68 | - | 2 | 21 | 36 | 3 | 85 | - | 14 | 9 | - | 1 | - | |
| Va. | 2 | - | 6 | - | - | 51 | 12 | - | 41 | - | 10 | 17 | - | - | - | |
| W. Va. | 2 | - | 9 | - | 15 | 167 | 42 | 9 | 213 | 2 | 37 | 23 | - | - | - | |
| N.C. | 10 | - | 9 | - | - | - | 21 | 3 | 24 | - | 5 | - | - | - | - | |
| S.C. | - | - | 4 | - | - | - | 53 | - | 56 | - | 14 | 16 | - | - | - | |
| Ga. | 11 | - | 80 | - | 26 | 2 | 79 | 1 | 150 | - | 10 | 43 | - | 11 | 5 | |
| Fla. | 31 | - | 429 | - | 58 | 117 | 79 | 1 | 150 | - | 10 | 43 | - | 11 | 5 | |
| E.S. CENTRAL | 14 | 25 | 139 | - | 2 | 174 | 92 | 6 | 76 | 8 | 101 | 67 | - | 2 | 2 | |
| Ky. | 2 | 5 | 29 | - | - | 20 | 29 | - | - | - | - | - | - | - | - | |
| Tenn. | 7 | 20 | 62 | - | - | 109 | 34 | 5 | 41 | 7 | 42 | 23 | - | 1 | 2 | |
| Ala. | 5 | - | 19 | - | 2 | 45 | 27 | 1 | 11 | 1 | 54 | 34 | - | - | - | |
| Miss. | - | - | 29 | - | - | - | 2 | - | 24 | - | 5 | 9 | - | - | - | |
| W.S. CENTRAL | 29 | - | 3,802 | - | 87 | 3,003 | 108 | 7 | 563 | 5 | 45 | 123 | 2 | 4 | 38 | |
| Ark. | 1 | - | 12 | - | 29 | 2 | 16 | - | 128 | - | 2 | 16 | - | 2 | 3 | |
| La. | 1 | - | 10 | - | - | 9 | 26 | 2 | 92 | 1 | 14 | 6 | - | - | 5 | |
| Okla. | 8 | - | 172 | - | - | 105 | 13 | - | 103 | 4 | 29 | 20 | - | 1 | 1 | |
| Tex. | 19 | - | 3,608 | - | 58 | 2,887 | 53 | 5 | 240 | - | 81 | - | - | - | 30 | |
| MOUNTAIN | 15 | 26 | 713 | - | 88 | 321 | 50 | 1 | 277 | 2 | 169 | 431 | 1 | 101 | 35 | |
| Mont. | 1 | - | - | - | 1 | 13 | 10 | 1 | 1 | 2 | 26 | 21 | - | 13 | 1 | |
| Idaho | 3 | - | 15 | - | 10 | 2 | 5 | - | 141 | - | 35 | 57 | 1 | 49 | 32 | |
| Wyo. | - | - | - | - | 11 | - | - | - | 2 | - | - | - | - | - | - | |
| Wyo. | - | - | - | - | 41 | 61 | 15 | - | 19 | - | 57 | 33 | - | 4 | - | |
| Colo. | 2 | 13 | 95 | - | 10 | 31 | 6 | N | N | - | 9 | 7 | - | - | - | |
| N. Mex. | 1 | - | 80 | - | - | - | 4 | - | 91 | - | 28 | 300 | - | 30 | - | |
| Ariz. | 7 | - | 260 | - | 12 | 112 | 4 | - | 91 | - | 28 | 300 | - | 30 | - | |
| Utah | - | 13 | 71 | - | - | 100 | 5 | - | 8 | - | 10 | 12 | - | 1 | - | |
| Nev. | 1 | - | 192 | - | 3 | 2 | 5 | - | 15 | - | 4 | 1 | - | 4 | 1 | |
| PACIFIC | 211 | - | 5,147 | 1 | 149 | 1,240 | 429 | 9 | 425 | 16 | 301 | 197 | 4 | 500 | 128 | |
| Wash. | 18 | - | 202 | - | 69 | 37 | 53 | 1 | 39 | 4 | 72 | 73 | - | - | 9 | |
| Oreg. | 12 | - | 154 | - | 44 | 16 | 47 | N | N | - | 20 | 7 | - | - | 2 | |
| Calif. | 178 | - | 4,705 | - | 30 | 1,162 | 318 | 7 | 374 | 8 | 179 | 113 | 4 | 481 | 106 | |
| Alaska | 2 | - | 78 | - | 2 | - | 7 | - | - | - | 4 | - | - | - | - | |
| Hawaii | 3 | - | 8 | 11 | 4 | 28 | 4 | 1 | 12 | 4 | 26 | 4 | - | 10 | 21 | |
| Guam | 2 | U | - | U | 1 | 2 | - | U | 2 | U | - | 1 | U | - | - | |
| P.R. | 2 | - | 808 | - | - | 437 | 9 | - | 7 | - | 5 | 4 | - | - | - | |
| V.I. | - | - | 21 | - | 3 | 4 | - | - | - | - | - | - | - | - | - | |
| Amer. Samoa | 35 | U | 132 | U | - | - | - | U | 15 | U | - | - | U | - | - | |
| C.N.M.I. | - | U | - | U | - | - | - | U | 7 | U | - | - | U | - | - | |

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable I: International O: Out-of-state

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending July 28, 1990, and July 29, 1989 (30th Week)

| Reporting Area | Syphilis (Civilian) (Primary & Secondary) | | Toxic- shock Syndrome | Tuberculosis | | Tula- remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rabies, Animal |
|----------------|--|--------------|-----------------------------|--------------|--------------|----------------|------------------|--|-------------------|
| | Cum. 1990 | Cum. 1989 | Cum. 1990 | Cum. 1990 | Cum. 1989 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 |
| UNITED STATES | 27,588 | 24,579 | 193 | 12,080 | 11,976 | 57 | 220 | 269 | 2,353 |
| NEW ENGLAND | 1,044 | 962 | 15 | 364 | 331 | 2 | 15 | 9 | 4 |
| Maine | 5 | 5 | 4 | - | 12 | - | - | - | - |
| N.H. | 40 | 9 | 1 | 3 | 16 | - | - | - | 2 |
| Vt. | 1 | - | - | 7 | 5 | - | - | - | - |
| Mass. | 406 | 299 | 8 | 158 | 171 | 2 | 14 | 8 | - |
| R.I. | 9 | 17 | 1 | 117 | 37 | - | - | - | - |
| Conn. | 583 | 632 | 1 | 79 | 90 | - | 1 | 1 | 2 |
| MID. ATLANTIC | 5,850 | 5,059 | 18 | 2,961 | 2,286 | 1 | 55 | 11 | 531 |
| Upstate N.Y. | 507 | 501 | 6 | 253 | 188 | - | 11 | 6 | 51 |
| N.Y. City | 2,617 | 2,209 | 5 | 1,763 | 1,287 | - | 29 | - | - |
| N.J. | 963 | 791 | - | 523 | 392 | 1 | 13 | 3 | 160 |
| Fla. | 1,763 | 1,558 | 7 | 422 | 419 | - | 2 | 2 | 320 |
| E.N. CENTRAL | 1,882 | 1,016 | 46 | 1,256 | 1,258 | 1 | 21 | 25 | 89 |
| Ohio | 294 | 73 | 16 | 213 | 230 | 1 | 4 | 20 | 3 |
| Ind. | 45 | 40 | 1 | 101 | 120 | - | 1 | - | 4 |
| Ill. | 730 | 445 | 7 | 620 | 571 | - | 11 | - | 19 |
| Mich. | 617 | 375 | 22 | 269 | 262 | - | 4 | 5 | 21 |
| Wis. | 196 | 83 | - | 53 | 75 | - | 1 | - | 42 |
| W.N. CENTRAL | 245 | 187 | 20 | 328 | 294 | 21 | - | 26 | 381 |
| Minn. | 51 | 24 | 1 | 61 | 62 | - | - | - | 152 |
| Iowa | 38 | 21 | 4 | 34 | 28 | - | - | - | 17 |
| Mo. | 130 | 94 | 8 | 159 | 124 | 17 | - | 20 | 15 |
| N. Dak. | 1 | 3 | - | 12 | 11 | - | - | - | 49 |
| S. Dak. | 1 | - | - | 9 | 15 | 3 | - | 2 | 113 |
| Nebr. | 8 | 17 | 3 | 14 | 14 | 1 | - | - | 4 |
| Kans. | 16 | 28 | 4 | 39 | 40 | - | - | 4 | 31 |
| S. ATLANTIC | 8,800 | 8,983 | 19 | 2,392 | 2,500 | 3 | 23 | 105 | 673 |
| Del. | 104 | 96 | 1 | 23 | 25 | - | - | 1 | 11 |
| Md. | 690 | 447 | 1 | 194 | 205 | - | 8 | 10 | 247 |
| D.C. | 585 | 529 | 1 | 88 | 111 | - | - | - | - |
| Va. | 469 | 319 | 2 | 203 | 206 | 1 | 2 | 8 | 121 |
| W. Va. | 33 | 10 | - | 41 | 43 | - | - | - | 24 |
| N.C. | 1,028 | 557 | 10 | 309 | 303 | 1 | 2 | 54 | 4 |
| S.C. | 558 | 460 | 2 | 282 | 287 | 1 | - | 29 | 82 |
| Ga. | 2,264 | 2,260 | - | 376 | 381 | - | - | 3 | 133 |
| Fla. | 3,069 | 4,305 | 2 | 676 | 939 | - | 10 | - | 51 |
| E.S. CENTRAL | 2,513 | 1,608 | 9 | 913 | 985 | 5 | 1 | 38 | 111 |
| Ky. | 46 | 35 | 2 | 225 | 232 | 1 | 1 | 5 | 29 |
| Tenn. | 1,071 | 715 | 4 | 235 | 281 | 4 | - | 28 | 27 |
| Ala. | 739 | 468 | 3 | 299 | 278 | - | - | 5 | 55 |
| Miss. | 657 | 370 | - | 154 | 194 | - | - | - | - |
| W.S. CENTRAL | 4,278 | 3,234 | 8 | 1,559 | 1,447 | 17 | 8 | 46 | 270 |
| Ark. | 284 | 208 | - | 198 | 153 | 12 | - | 8 | 24 |
| La. | 1,150 | 739 | 1 | 150 | 196 | - | - | 1 | - |
| Okl. | 130 | 57 | 7 | 114 | 122 | 5 | 2 | 34 | 81 |
| Tex. | 2,714 | 2,230 | - | 1,097 | 976 | - | 6 | 3 | 165 |
| MOUNTAIN | 521 | 461 | 24 | 290 | 268 | 6 | 18 | 6 | 115 |
| Mont. | - | 1 | - | 10 | 11 | - | - | 4 | 33 |
| Idaho | - | 1 | 2 | 9 | 14 | - | - | - | 1 |
| Wyo. | - | 3 | 2 | 3 | - | 1 | - | - | 33 |
| Colo. | 22 | 53 | 7 | 14 | 20 | 2 | - | - | 6 |
| N. Mex. | 29 | 20 | 3 | 56 | 48 | 3 | - | 1 | 25 |
| Ariz. | 387 | 139 | 7 | 142 | 125 | - | 16 | - | 5 |
| Utah | 5 | 12 | 3 | 18 | 24 | - | - | - | 8 |
| Nev. | 72 | 232 | - | 38 | 26 | - | 2 | - | - |
| PACIFIC | 2,455 | 3,069 | 34 | 2,017 | 2,607 | 1 | 78 | 3 | 179 |
| Wash. | 218 | 252 | 4 | 162 | 144 | 1 | 2 | - | 1 |
| Oreg. | 91 | 147 | - | 74 | 88 | - | - | 3 | - |
| Calif. | 2,128 | 2,660 | 29 | 1,666 | 2,237 | - | 69 | 2 | 156 |
| Alaska | 10 | 2 | - | 23 | 42 | - | - | - | 22 |
| Hawaii | 8 | 8 | 1 | 92 | 96 | - | 4 | - | - |
| Guam | 2 | 4 | - | 22 | 44 | - | - | - | - |
| P.R. | 204 | 324 | - | 66 | 189 | - | - | - | 30 |
| V.I. | 3 | 5 | - | 4 | 4 | - | - | - | - |
| Amer. Samoa | - | - | - | 8 | 2 | - | 1 | - | - |
| C.N.M.I. | 1 | 7 | - | 29 | 12 | - | 4 | - | - |

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending
July 28, 1990 (30th Week)

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I [†] Total | Reporting Area | All Causes, By Age (Years) | | | | | | P&I [†] Total |
|---------------------|----------------------------|-------|-------|-------|------|----|---------------------------|-----------------------|----------------------------|-------|-------|-------|------|-----|---------------------------|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | | | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | |
| NEW ENGLAND | 654 | 472 | 100 | 42 | 20 | 20 | 68 | S. ATLANTIC | 1,363 | 753 | 307 | 161 | 61 | 78 | 78 |
| Boston, Mass. | 187 | 116 | 36 | 16 | 10 | 9 | 25 | Atlanta, Ga. | 177 | 102 | 42 | 20 | 3 | 10 | 7 |
| Bridgeport, Conn. | 46 | 31 | 9 | 5 | - | 1 | 6 | Baltimore, Md. | 168 | 97 | 33 | 21 | 7 | 4 | 10 |
| Cambridge, Mass. | 14 | 13 | 1 | - | - | - | 4 | Charlotte, N.C. | 86 | 49 | 22 | 10 | 5 | - | 10 |
| Fall River, Mass. | 26 | 22 | 4 | - | - | - | - | Jacksonville, Fla. | 116 | 71 | 25 | 12 | 4 | 4 | 10 |
| Hartford, Conn. | 48 | 30 | 10 | 4 | 3 | 1 | 3 | Miami, Fla. | 110 | 48 | 26 | 17 | 9 | 10 | 10 |
| Lowell, Mass. | 15 | 13 | 2 | - | - | - | 1 | Norfolk, Va. | 52 | 30 | 14 | 3 | 2 | 3 | 10 |
| Lynn, Mass. | 9 | 8 | - | - | - | - | 1 | Richmond, Va. | 100 | 58 | 19 | 10 | 2 | 9 | 10 |
| New Bedford, Mass. | 26 | 23 | 2 | - | - | - | 1 | Savannah, Ga. | 53 | 37 | 10 | 4 | 2 | - | 10 |
| New Haven, Conn. | 42 | 25 | 7 | 5 | 2 | 3 | 4 | St. Petersburg, Fla. | 67 | 46 | 10 | 1 | 3 | 7 | 10 |
| Providence, R.I. | 68 | 59 | 6 | 2 | - | 1 | 7 | Tampa, Fla. | 81 | 51 | 19 | 5 | - | - | 10 |
| Somerville, Mass. | 11 | 6 | 2 | 3 | - | - | - | Washington, D.C. | 327 | 142 | 79 | 56 | 21 | 29 | 10 |
| Springfield, Mass. | 48 | 36 | 5 | 2 | 1 | 4 | 4 | Wilmington, Del. | 26 | 22 | 2 | 2 | - | - | 10 |
| Waterbury, Conn. | 36 | 26 | 8 | 1 | 1 | - | 5 | E.S. CENTRAL | 762 | 471 | 168 | 76 | 18 | 29 | 40 |
| Worcester, Mass. | 78 | 64 | 8 | 4 | 1 | 1 | 7 | Birmingham, Ala. | 127 | 70 | 22 | 15 | 4 | 16 | 40 |
| MID. ATLANTIC | 2,606 | 1,637 | 486 | 321 | 74 | 87 | 112 | Chattanooga, Tenn. | 70 | 54 | 11 | 2 | - | 3 | 40 |
| Albany, N.Y. | 45 | 30 | 6 | 6 | 1 | 2 | 1 | Knoxville, Tenn. | 101 | 59 | 27 | 9 | 5 | 1 | 40 |
| Allentown, Pa. | 26 | 19 | 5 | 2 | - | - | - | Louisville, Ky. | 64 | 38 | 18 | 8 | - | - | 40 |
| Buffalo, N.Y. | 102 | 71 | 22 | 5 | 3 | 1 | 3 | Memphis, Tenn. | 157 | 93 | 41 | 16 | 5 | 2 | 10 |
| Camden, N.J. | 41 | 27 | 8 | 4 | 2 | - | - | Mobile, Ala. | 94 | 54 | 16 | 11 | 2 | 1 | 10 |
| Elizabeth, N.J. | 29 | 17 | 8 | 1 | - | 3 | 1 | Montgomery, Ala. | 37 | 21 | 11 | 4 | - | - | 10 |
| Erie, Pa.† | 47 | 36 | 8 | 1 | - | 2 | 5 | Nashville, Tenn. | 122 | 82 | 22 | 11 | 2 | 5 | 10 |
| Jersey City, N.J. | 39 | 26 | 7 | 4 | - | 2 | 1 | W.S. CENTRAL | 1,708 | 1,025 | 359 | 188 | 76 | 60 | 70 |
| N.Y. City, N.Y. | 1,464 | 869 | 272 | 224 | 51 | 48 | 51 | Austin, Tex. | 66 | 42 | 11 | 10 | 1 | 2 | 40 |
| Newark, N.J. | 82 | 31 | 25 | 17 | 2 | 6 | 8 | Baton Rouge, La. | 21 | 10 | 3 | 1 | 3 | 4 | 40 |
| Paterson, N.J. | 35 | 21 | 5 | 5 | - | - | - | Corpus Christi, Tex. | 52 | 29 | 12 | 6 | 2 | 3 | 40 |
| Philadelphia, Pa. | 297 | 187 | 62 | 29 | 6 | 13 | 5 | Dallas, Tex. | 206 | 110 | 49 | 23 | 11 | 13 | 40 |
| Pittsburgh, Pa.† | 73 | 51 | 13 | 7 | 1 | 1 | 1 | El Paso, Tex. | 59 | 37 | 12 | 7 | 2 | 1 | 40 |
| Reading, Pa. | 41 | 28 | 6 | 2 | 3 | 2 | 5 | Fort Worth, Tex. | 83 | 57 | 10 | 9 | 5 | 2 | 40 |
| Rochester, N.Y. | 122 | 98 | 12 | 7 | 3 | 2 | 18 | Houston, Tex.† | 734 | 436 | 169 | 89 | 24 | 16 | 10 |
| Schenectady, N.Y. | 15 | 11 | 2 | 1 | 1 | - | - | Little Rock, Ark. | 60 | 48 | 5 | 4 | 1 | 2 | 40 |
| Scranton, Pa.† | 25 | 19 | 3 | 1 | 1 | 1 | 3 | New Orleans, La. | 102 | 51 | 26 | 12 | 3 | 10 | 40 |
| Syracuse, N.Y. | 51 | 38 | 10 | 3 | - | - | 3 | San Antonio, Tex. | 208 | 127 | 45 | 19 | 12 | 5 | 10 |
| Trenton, N.J. | 39 | 29 | 10 | - | - | - | - | Shreveport, La. | 33 | 19 | 7 | 1 | 4 | 2 | 40 |
| Utica, N.Y. | 15 | 13 | 1 | 1 | - | - | - | Tulsa, Okla. | 84 | 59 | 10 | 7 | 8 | - | 40 |
| Yonkers, N.Y. | 18 | 16 | 1 | 1 | - | - | 3 | MOUNTAIN | 658 | 418 | 133 | 54 | 35 | 18 | 30 |
| E.N. CENTRAL | 2,208 | 1,399 | 485 | 176 | 69 | 79 | 86 | Albuquerque, N. Mex. | 75 | 46 | 12 | 9 | 7 | 1 | 30 |
| Akron, Ohio | 62 | 43 | 12 | 3 | 2 | 2 | 5 | Colo. Springs, Colo. | 34 | 25 | 3 | 4 | 1 | - | 30 |
| Canton, Ohio | 33 | 28 | 5 | - | - | - | 4 | Denver, Colo. | 83 | 53 | 14 | 9 | 7 | - | 30 |
| Chicago, Ill.† | 564 | 362 | 125 | 45 | 10 | 22 | 16 | Las Vegas, Nev. | 153 | 95 | 39 | 11 | 4 | 4 | 30 |
| Cincinnati, Ohio | 102 | 66 | 20 | 8 | 4 | 4 | 9 | Ogden, Utah | 25 | 18 | 4 | 2 | 1 | - | 30 |
| Cleveland, Ohio | 186 | 102 | 50 | 18 | 7 | 9 | 2 | Phoenix, Ariz. | 152 | 88 | 41 | 9 | 5 | 9 | 30 |
| Columbus, Ohio | 179 | 111 | 44 | 14 | 7 | 3 | 3 | Pueblo, Colo. | 17 | 11 | 3 | 1 | 1 | 1 | 30 |
| Dayton, Ohio | 108 | 65 | 26 | 11 | 3 | 3 | 6 | Salt Lake City, Utah | 19 | 11 | 4 | 2 | 1 | 1 | 30 |
| Detroit, Mich. | 197 | 111 | 46 | 20 | 13 | 7 | 2 | Tucson, Ariz. | 100 | 71 | 13 | 7 | 8 | 1 | 30 |
| Evansville, Ind. | 51 | 28 | 19 | 1 | 2 | 1 | 2 | PACIFIC | 1,857 | 1,170 | 335 | 222 | 73 | 51 | 100 |
| Fort Wayne, Ind. | 61 | 45 | 9 | 5 | - | 2 | 4 | Berkeley, Calif. | 20 | 15 | 2 | 3 | - | - | 30 |
| Gary, Ind. | 31 | 13 | 12 | 3 | 2 | 1 | 2 | Fresno, Calif. | 56 | 36 | 9 | 5 | 3 | 3 | 30 |
| Grand Rapids, Mich. | 51 | 33 | 4 | 6 | 5 | 1 | 3 | Glendale, Calif. | 21 | 17 | 1 | 1 | 1 | - | 30 |
| Indianapolis, Ind. | 181 | 117 | 31 | 13 | 7 | 13 | 1 | Honolulu, Hawaii | 95 | 55 | 19 | 13 | 3 | 5 | 10 |
| Madison, Wis.† | 35 | 23 | 8 | 4 | - | - | 3 | Long Beach, Calif. | 72 | 39 | 17 | 11 | 4 | 1 | 10 |
| Milwaukee, Wis. | 114 | 79 | 20 | 10 | 3 | 2 | 2 | Los Angeles, Calif. | 470 | 286 | 77 | 68 | 27 | 8 | 30 |
| Peoria, Ill. | 51 | 30 | 12 | 3 | 1 | 5 | 8 | Oakland, Calif. | 86 | 59 | 11 | 12 | 1 | 3 | 30 |
| Rockford, Ill. | 30 | 20 | 8 | 1 | 1 | - | 1 | Pasadena, Calif. | 29 | 17 | 7 | 2 | 1 | 2 | 30 |
| South Bend, Ind. | 41 | 33 | 5 | 3 | - | - | 4 | Portland, Ore. | 119 | 86 | 18 | 5 | 6 | 4 | 30 |
| Toledo, Ohio | 77 | 51 | 19 | 5 | 1 | - | 3 | Sacramento, Calif. | 157 | 103 | 29 | 14 | 7 | 4 | 30 |
| Youngstown, Ohio | 54 | 37 | 10 | 3 | 1 | 3 | 3 | San Diego, Calif. | 151 | 84 | 34 | 20 | 4 | 8 | 30 |
| W.N. CENTRAL | 839 | 589 | 143 | 57 | 30 | 20 | 33 | San Francisco, Calif. | 165 | 84 | 44 | 28 | 3 | 5 | 30 |
| Des Moines, Iowa | 51 | 41 | 7 | 2 | 1 | - | 1 | San Jose, Calif. | 155 | 97 | 31 | 17 | 9 | 1 | 30 |
| Duluth, Minn. | 26 | 22 | 3 | 1 | - | - | 4 | Seattle, Wash.‡ | 149 | 99 | 27 | 18 | 3 | 2 | 30 |
| Kansas City, Kans. | 29 | 14 | 9 | 2 | 3 | 1 | - | Spokane, Wash. | 57 | 46 | 4 | 4 | 1 | 2 | 30 |
| Kansas City, Mo. | 115 | 73 | 21 | 11 | 5 | 5 | 6 | Tacoma, Wash. | 55 | 47 | 5 | 1 | - | 2 | 30 |
| Lincoln, Nebr. | 32 | 26 | 5 | 1 | - | - | 4 | TOTAL | 12,655 ^{††} | 7,934 | 2,516 | 1,297 | 456 | 442 | 620 |
| Minneapolis, Minn. | 227 | 162 | 38 | 14 | 8 | 5 | 10 | | | | | | | | |
| Omaha, Nebr. | 83 | 52 | 18 | 7 | 1 | 5 | 4 | | | | | | | | |
| St. Louis, Mo. | 142 | 98 | 22 | 13 | 5 | 4 | - | | | | | | | | |
| St. Paul, Minn. | 79 | 59 | 12 | 5 | 3 | - | 3 | | | | | | | | |
| Wichita, Kans. | 55 | 42 | 8 | 1 | 4 | - | 1 | | | | | | | | |

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

††Pneumonia and influenza.

‡Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past available 4 weeks.

Shigellosis — Continued

epidemics of diarrheal illness that disproportionately affect young children. Stool specimens should be obtained and state and local health departments informed promptly of culture-confirmed cases so that outbreaks of shigellosis can be recognized and appropriate control measures instituted.

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Characteristics of Clients in Alcohol- and Drug-Treatment Centers — South Carolina, 1989

The South Carolina Department of Health and Environmental Control (SCDHEC) recently evaluated characteristics of clients in detoxification programs of selected alcohol- and drug-treatment centers to determine 1) the human immunodeficiency virus (HIV), hepatitis B, and syphilis seropositivity of clients; 2) the proportion of clients with histories of intravenous (IV)-drug use; and 3) clients' drug-use and risk behaviors and attitudes. This report presents findings of the SCDHEC evaluation.

In 1989, the 37 public, community-based alcohol- and drug-treatment centers in South Carolina served 32,323 clients who had a primary diagnosis of alcohol or other drug use. In South Carolina, clients who are admitted to alcohol- and drug-treatment centers are charged for services on a sliding scale based on their ability to pay; no one is refused service. Clients are referred for treatment by themselves, state and local agencies, hospitals, and emergency rooms. Inpatient services are offered for a maximum of 28 days; outpatient services may continue indefinitely. In 1989, 86% of clients were treated on an outpatient basis.

From April 25 through June 23, 1989, the SCDHEC surveyed and tested all clients entering detoxification services at alcohol- and drug-treatment centers in three urban counties (approximate population of each county: 300,000). During this period, 632 clients entered the centers and were tested for HIV, hepatitis B surface antigen (HBsAg), and syphilis (rapid plasma reagin [RPR]); nine (1%) were HIV-antibody positive, 21 (3%) were HBsAg positive, and 22 (3%) had a reactive RPR.

Of the 632 clients, 478 (76%) completed an anonymous, self-administered questionnaire concerning drug use, HIV-transmission risk behaviors, and attitudes regarding HIV prevention. Of the clients who completed the questionnaire, 442 (92%) provided drug-use information. Of these, 162 (41%) indicated they had used IV drugs at some time in the past, and 129 (29%) indicated they had used IV drugs in the past year. The median age of the IV-drug users (IVDUs) was 31 years (range: 12-72 years), and their median education level was 12th grade (range: 4-16 years of school). Of the

Alcohol- and Drug-Treatment Centers — Continued

174 for whom gender was known, 131 (75%) were male. Of the 169 for whom race was known, 103 (61%) were white, 63 (37%) were black, and three (2%) were other races. Sexual preference was known for 163 IVDUs: 150 (92%) were heterosexual and 13 (8%; nine males and four females) were homosexual/bisexual. Drug use was reported by the nine HIV-positive persons: seven indicated IV-drug use as their only risk behavior, one indicated a history of IV-drug use and bisexuality, and one indicated a history of non-IV cocaine use.

Of the 182 clients who had used IV drugs, 80 (44%) reported sharing needles or other drug-injection equipment. One hundred six (58%) indicated that they always rinsed their drug-injection equipment after use; however, only 16 (15%) of these used bleach when cleaning their drug-injection equipment. Of the 182 IVDUs, 28 (15%; 16 males, 10 females, two unknown) indicated that in the past year they had exchanged sex for money, drugs, or other gifts. The drugs most frequently injected were cocaine (62%), heroin (30%), and combinations of cocaine and heroin (22%).

Of 114 persons indicating how frequently they injected drugs, 43 (38%) reported injecting daily; 34 (30%), weekly; and 37 (32%), monthly. Of the 173 persons who answered questions on condom use, 88 (51%) reported never using condoms; 72 (42%), sometimes using condoms; and 13 (8%), always using condoms.

In regard to attitudes about HIV testing, 85% of the IVDUs indicated that all persons in a drug-treatment program should be offered testing and counseling at the site where drug treatment is received.

Reported by: JL Jones, MD, P Rion, MSPH, H Dowda, PhD, L Kettinger, MPH, R Ball, MD, WB Gamble, Jr, MD, State Epidemiologist, South Carolina Dept of Health and Environmental Control. L Nalty, MEd, D Nalty, PhD, South Carolina Commission on Alcohol and Drug Abuse.

Editorial Note: The findings of this evaluation by the SCDHEC have played an important role in the development of new disease-prevention programs in South Carolina alcohol- and drug-treatment centers. These programs include client education on the prevention of HIV infection, hepatitis B, and sexually transmitted diseases; specific HIV-training sessions for substance-abuse counselors; training plans for the implementation of outreach programs; specific risk-reduction programs for female IVDUs; condom distribution programs; and a program for counselors to demonstrate one-on-one to clients how to clean drug-injection equipment with bleach.

This survey (which involved 76% of clients) found that 41% of the clients of these centers reported IV-drug use. Clients who attend alcohol- and drug-treatment centers may not be representative of the IV-drug-using population in a locality (1); however, they do represent a population that is accessible through public health programs that offer counseling and testing for HIV and other sexually transmitted diseases, partner notification, and other HIV-related services (e.g., free and confidential CD4 lymphocyte testing with referral to other health-care providers). These services can provide incentives for clients to return for follow-up counseling, which is important for behavioral change among IVDUs (2). Results of this evaluation also indicate that greater efforts in preventive education are needed to reduce risk factors associated with HIV transmission among IVDUs.

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Infant Mortality by Marital Status of Mother — United States, 1983

From 1950 to 1987, the proportion of out-of-wedlock births in the United States increased sixfold, from 4% (1) to 24% of all births, respectively. In 1987, 17% of live births among whites and 62% of live births among blacks were out of wedlock (2). Because out-of-wedlock childbearing is associated with adverse pregnancy and infant health outcomes, increasing attention has been focused on out-of-wedlock childbearing as a maternal and child-health policy issue in the United States.

In 1960, the infant mortality rates for out-of-wedlock births for whites and for all other races were 33.0 and 51.2 deaths per 1000 live births, respectively. Rates for all live births for whites and for all other races were 22.2 and 41.4 per 1000, respectively (3). To update these data, the 1983 national linked birth-death file (4) (the latest data available at the time of analysis) was analyzed; the analysis was restricted to singleton live births to U.S. resident white ($n=2,875,283$) and black ($n=546,949$) mothers.

In 1983, 13% of singleton live births among whites and 59% of singleton live births among blacks were to unmarried women. Twenty percent of infant deaths among whites and 66% of infant deaths among blacks were among infants born to unmarried mothers.

For both whites and blacks, unmarried motherhood was associated with an elevated overall infant mortality rate, but the association was greater for whites (rate ratio (RR)=1.7) than for blacks (RR=1.3) (Table 1). The overall infant mortality rate was higher for infants born to unmarried mothers (13.1 and 19.6 per 1000 live births for whites and blacks, respectively) than for infants born to married mothers (7.8 and 14.6 per 1000 live births for whites and blacks, respectively). However, infants born to unmarried mothers <18 years of age had slightly lower infant mortality rates (14.3 and 20.7 per 1000 for whites and blacks, respectively) than infants born to married mothers in this age group (15.4 per 1000 for whites and 23.4 per 1000 for blacks). For mothers ≥ 18 years of age, the out-of-wedlock/in-wedlock mortality rate ratios were >1 and generally increased with increasing maternal age.

The effect of marital status on infant mortality rates was greatest in the postneonatal period (28–364 days), where the variations in mortality by maternal age were larger. Postneonatal mortality for infants born to unmarried mothers was higher than for infants born to married women except for white mothers <18 years of age and black mothers <20 years of age.

Reported by: T Bennett, DrPH, Institute for Health Policy Studies, Univ of California, San Francisco. Div of Analysis, National Center for Health Statistics; Div of Reproductive Health, Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: Adverse pregnancy outcomes are correlated with poverty conditions. In 1988, 36% of black families and 12% of white families with children <18 years of age were classified as living in poverty. Families with unmarried mothers are even more likely to be living in poverty. In 1988, 56% of black families and 38% of white families with children <18 years of age and no male head of household were classified as living below the poverty level (5).

The finding in the 1983 birth cohort that infant mortality was lower in infants born to unmarried teenage mothers than in infants born to married teenagers is consistent with findings for earlier periods (6,7). This finding is not unexpected, since the marital

TABLE 1. Infant, neonatal, and postneonatal mortality rates per marital status — United States, 1983

| Race/Age | Infant mortality* rate | | | | Neonatal | |
|--------------|------------------------|-----------|-------|-----------------------|----------|-----------|
| | Married | Unmarried | Ratio | (95% CI) ^b | Married | Unmarried |
| White | | | | | | |
| All ages | 7.8 | 13.1 | 1.7 | (1.6–1.7) | 5.0 | 7.8 |
| <18 | 15.4 | 14.3 | 0.9 | (0.9–1.0) | 8.4 | 9.0 |
| 18–19 | 11.2 | 13.5 | 1.2 | (1.1–1.3) | 6.5 | 7.8 |
| 20–24 | 8.3 | 13.0 | 1.6 | (1.5–1.7) | 4.9 | 7.3 |
| 25–29 | 6.8 | 11.6 | 1.7 | (1.6–1.9) | 4.6 | 7.2 |
| 30–34 | 7.0 | 12.5 | 1.8 | (1.6–2.0) | 4.9 | 8.5 |
| ≥35 | 8.5 | 13.8 | 1.6 | (1.4–1.9) | 6.0 | 8.9 |
| Black | | | | | | |
| All ages | 14.6 | 19.6 | 1.3 | (1.3–1.4) | 9.7 | 12.1 |
| <18 | 23.4 | 20.7 | 0.9 | (0.7–1.1) | 11.0 | 12.5 |
| 18–19 | 16.7 | 18.5 | 1.1 | (0.9–1.3) | 9.1 | 11.3 |
| 20–24 | 14.9 | 19.4 | 1.3 | (1.2–1.4) | 9.1 | 11.4 |
| 25–29 | 14.1 | 19.5 | 1.4 | (1.3–1.5) | 9.5 | 12.8 |
| 30–34 | 14.6 | 20.2 | 1.4 | (1.2–1.7) | 10.8 | 13.7 |
| ≥35 | 13.5 | 24.0 | 1.8 | (1.5–2.2) | 10.6 | 16.7 |

*Death at ≤364 days of age.

^bDeath at <28 days of age.

^cDeath from 28 days to 364 days of age.

^dConfidence interval.

s per 1000 singleton live births, by mother's race, age, and

| Perinatal mortality [†] rate | | | Postneonatal mortality [§] rate | | | |
|---------------------------------------|-------|-----------|--|-----------|-------|-----------|
| Unmarried | Ratio | (95% CI) | Married | Unmarried | Ratio | (95% CI) |
| 7.8 | 1.6 | (1.5-1.6) | 2.8 | 5.3 | 1.9 | (1.8-2.0) |
| 9.0 | 1.1 | (0.9-1.2) | 7.0 | 5.3 | 0.8 | (0.7-0.9) |
| 7.8 | 1.2 | (1.1-1.3) | 4.7 | 5.7 | 1.2 | (1.1-1.4) |
| 7.3 | 1.5 | (1.4-1.6) | 3.4 | 5.7 | 1.7 | (1.6-1.8) |
| 7.2 | 1.6 | (1.4-1.8) | 2.2 | 4.4 | 2.0 | (1.7-2.2) |
| 8.5 | 1.7 | (1.5-2.0) | 2.1 | 4.0 | 1.9 | (1.6-2.4) |
| 8.9 | 1.5 | (1.2-1.8) | 2.4 | 4.9 | 2.0 | (1.5-2.7) |
| 12.1 | 1.3 | (1.2-1.3) | 4.9 | 7.6 | 1.5 | (1.4-1.6) |
| 12.5 | 1.1 | (0.8-1.6) | 12.4 | 8.2 | 0.7 | (0.5-0.9) |
| 11.3 | 1.2 | (1.0-1.5) | 7.6 | 7.2 | 1.0 | (0.8-1.2) |
| 11.4 | 1.3 | (1.2-1.4) | 5.8 | 8.0 | 1.4 | (1.2-1.6) |
| 12.8 | 1.4 | (1.2-1.5) | 4.5 | 6.6 | 1.5 | (1.3-1.7) |
| 13.7 | 1.3 | (1.1-1.5) | 3.8 | 6.5 | 1.7 | (1.4-2.2) |
| 16.7 | 1.6 | (1.3-2.0) | 2.9 | 7.2 | 2.5 | (1.7-3.7) |

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Infant Mortality - Continued

status of the mother confers neither risk nor protection to the infant; rather, the principal benefits of marriage to infant survival are economic and social support.

The lack of economic and social support for married teenage mothers is a consequence of several factors. According to the 1980 U.S. Census, 39% of black married women aged 15-19 years were living separately from their husbands (8). Moreover, married teenagers are more likely to have unstable marriages than are older married persons (9) and are more likely to have repeated teenage childbearing than are unmarried teenagers (10). Married teenagers are also more likely to establish independent households, thereby estranging themselves from financial and child-care support from relatives (11).

The association between marital status and infant mortality rates is stronger in the postneonatal period than in the neonatal period. This association suggests that marital status is an important proxy measure of factors traditionally related to postneonatal mortality, such as socioeconomic status, social support, and other circumstances not reflected by education and other commonly used measures.

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Director, Centers for Disease Control
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Director, Epidemiology Program Office
Stephen B. Thacker, M.D., M.Sc.

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